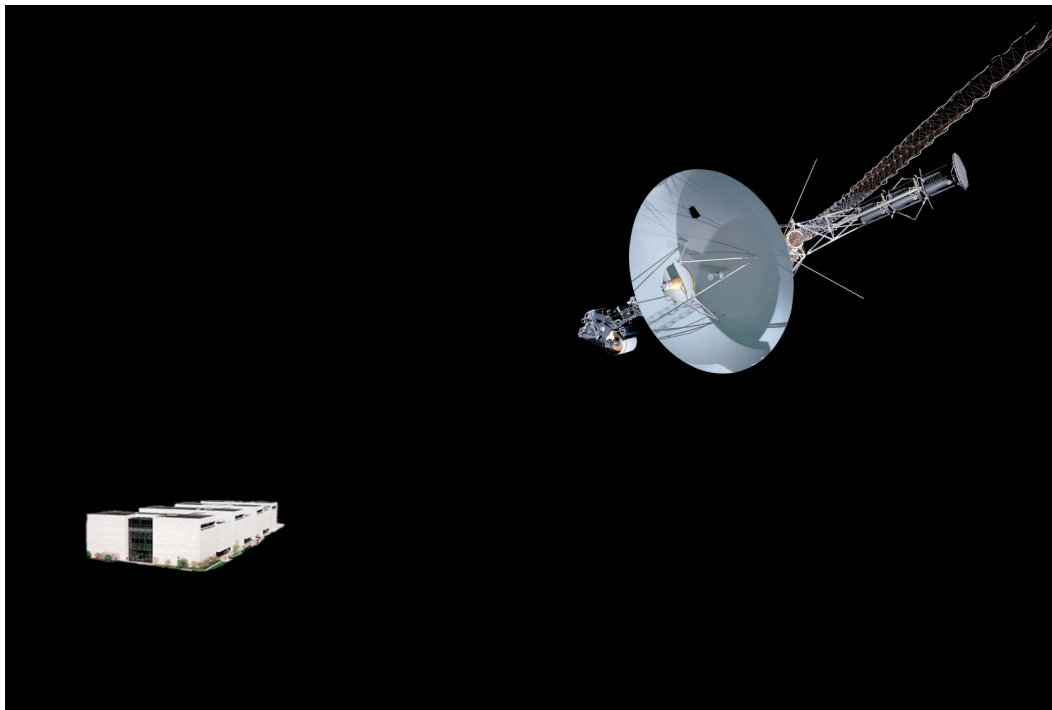


# Exploring Air and Space

A STUDY OF VISITOR EXPECTATIONS AND RESPONSES  
AT THE NATIONAL AIR AND SPACE MUSEUM  
IN SPRING, 2008



SMITHSONIAN INSTITUTION  
OFFICE OF POLICY AND ANALYSIS  
DECEMBER, 2008

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## **Preface**

The world-renowned National Air and Space Museum on the National Mall tells the stories of a broad array of aviation and space flight icons. Its display of objects transforms visitors into engineers, fabricators, flyers, astronomers and historians.

In the Spring of 2008, the Office of Policy and Analysis (OP&A) conducted a study of visitors entering the museums and visitors exiting the museum. For the most part, the museum is successfully meeting visitors' expectations.

The study was led by two senior social scientists, Andrew Pekarik and Ioana Munteanu. The entire OP&A staff provided considerable assistance, but the following three interns supported this study with substantial contributions: Karl Stessy Bisselou Moukanga, Josh Brown, and Justin Cason. The team also benefitted from the able assistance of Steven Williams, the former Director of Education at the National Air and Space Museum (NASM), who provided insights and helped fill gaps. I thank them all and the staffs at NASM and the Udvar-Hazy Center who are committed to serving visitors and enhancing their experiences in the fullest sense.

Carole MP Neves, PhD  
Director  
Office of Policy and Analysis

## **Executive Summary**

### **The Study**

This study, requested by the museum's Exhibition and Interpretive Vision Group, was designed to be an overview of the visitor experience at NASM that would compare what visitors expected with what they encountered. It was conducted in spring of 2008, when the museum was most crowded, but it did not include those visiting in school classes or other organized groups.

### **The Audience**

Most visitors came with others and were from out of town. The majority was visiting NASM for the first time. There were slightly more men than women. The majority of visitors were very interested in Space flight, Technology/Innovation, and the Universe. Less than half were very interested in the History of flight or Military aviation.

### **Expectations**

As with other Smithsonian museums, visitors came with high overall expectations. Most expected they would rate their visit as "excellent," on the scale "Poor," "Fair," "Good," "Excellent," "Superior"). They were primarily seeking information; secondarily they wanted to see rare objects or things they had heard about. The two most important reasons for their visit were to spend time with friends and family and to take a tour. Most of the visitors expected to spend between one and two hours in the museum.

### **Outcomes in general**

Most exiting visitors were as happy with their visit as entering visitors expected to be, but for a few the visit was better than expected and for a few more it was worse. Among their satisfying experiences, they saw notably more rare things than they expected, but were less likely to have felt what it is like to fly. For all the other experiences measured, visitors got about what they were looking for.

A significant number of people indicated that taking a tour was an important reason for their visit, but relatively few actually took a tour. Visitors who came with one or more adults were much more likely to want a tour but not take one.

Some visitors spent longer than anticipated, especially those who saw an IMAX movie or Planetarium show or who ate or shopped. A longer visit was also associated with higher ratings, trying hands-on activities, watching videos, walking into airplanes, enriching one's understanding, and seeing things one had heard about.

### **Outcomes for specific sub-groups**

*Women* entered the museum with lower expectations than men, but at the end of the visit they gave the museum the same rating that men did. They were also more likely than men to have had satisfying imagination experiences and feelings of pride in America.

*Visitors between the ages of 31 and 41 (Generation X) entered with lower expectations and were less happy when they left, compared to other visitors.*

*New visitors saw rare things more than they expected, and recalled memories more than they expected, but gained information less than they expected. At the end of the visit they gave a mixed response: some gave the museum a higher rating than they expected while others gave it a lower rating.*

### **General Observations**

On balance the museum did a good job of meeting its visitors' expectations. In particular, women came with lower expectations than men, but left equally satisfied. The museum might benefit by promoting itself more to women. But it did worse at both drawing and satisfying those between the ages of 31 and 41. Unfortunately this study cannot identify the precise causes for these outcomes, and there are probably multiple factors involved.

The report raises some specific issues that merit attention:

First, there is a wide gap between the number of visitors who came to take a tour, and the number who took a tour. Is this due to a lack of tour availability? Is it a failure to communicate the times, places, or procedures for tours? Is this difference a sign of a deficiency or is it the result of a neutral change of plans on the part of visitors?

Second, while the overall rating of the museum is close to the Smithsonian average, the percentage of people who are most pleased with the museum (i.e., those who rate it "superior") is a bit low. This suggests that there is room for improvement. "Superior" scores are closely associated with the "richness" of the visit, as measured by the number of different types of satisfying experiences. Thus, efforts to expand the range and integration of visitor experiences might be beneficial. For example, although the museum does a good job of surprising visitors with unexpected rare object experiences, it is not surprising visitors with unexpected information experiences.

Third, the study identifies at least two areas of opportunity that could be exploited more aggressively. One of these areas is the social dimension of the visit: spending time with friends or family is an important reason for visiting, most visitors come to the museums in groups of two or more, and there are many cross-generational groups. Walking into airplanes/space lab (a popular social experience) was as common an activity as reading labels, despite the fact that walkthrough experiences are much less available than reading experiences. What more could be done to target and satisfy the social experience?

Another opportunity lies in the very strong interest of entering visitors in space and the universe. Is there a way to make this aspect more readily apparent and accessible?

Finally, it should be noted that some of these findings might be due to the time of year in which the study was conducted. Audiences change from season to season, as does the atmosphere within the museum itself. The only way to pin down those variations is to conduct studies at different times of year.

## Introduction and purpose of the study

Recently the National Air and Space Museum (NASM) began a broad review of its plans for future exhibitions. The Exhibition and Interpretive Vision Group (EVIG), a cross-disciplinary committee of museum staff, under the leadership of Space History Curator Martin Collins and Exhibition Designer Beatrice Mowry, led this review effort. The present study was designed as a baseline survey to inform the work of this group. Its aim was to scan the major parameters of a visit to NASM, and to identify possible differences between visitors' expectations (on entrance) and responses (on exit) with respect to:

- The Audiences and their interests
- Activities
- Experiences
- Duration of the visit
- Rating of the overall visit
- Awareness of the Udvar-Hazy Center

By noting differences between what visitors expect when they arrive and what they actually encounter during their visit, it is possible to identify areas where the museum is benefiting visitors beyond their expectation and areas where it might be falling short. This information can be used both to guide future planning and also as a baseline against which to measure the possible effects of future changes.

## Methodology

The study used an entrance-exit design in order to determine whether the museum is meeting its audiences' expectations with respect to experiences and activities and whether a visit affects visitors' awareness of the Udvar-Hazy Center, NASM's other public facility,

The data collection team, comprised of Office of Policy and Analysis (OP&A) staff and interns as well as NASM staff, intercepted a total of 1,688 entering and exiting visitors ages 12 and above to NASM in April, 2008, and asked them to fill out a short, one-page questionnaire.<sup>1</sup> Six in ten eligible visitors (57%) completed the survey. Language difficulties and lack of time were the top reasons why some visitors refused to complete the survey. However, when compared to those who completed the survey form, those who refused were similar with respect to the demographic characteristics determined by the interviewers (gender, estimated age, residence, and group composition) and with respect to the ratings they gave their overall experience.<sup>2</sup>

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<sup>1</sup> Visitors in organized groups were excluded from the study. NASM visitors were intercepted between 10:45 am and 4:30pm on April 16, 17, 18, 20, 21, 22 and 26.

<sup>2</sup> One exception stood out. Slightly more visitors who refused were estimated by interviewers as belonging to the Generation X (31 to 41 years old) compared to those who completed questionnaires. However, this

## The Audiences and Their Interests

WHO VISITED THE NATIONAL AIR AND SPACE MUSEUM IN THE SPRING OF 2008?  
WHAT PERCENTAGE HAD BEEN TO THE MUSEUM BEFORE?  
HOW LONG AGO WAS THEIR LAST VISIT?  
HOW INTERESTED ARE VISITORS IN THE MUSEUM'S SUBJECT AREAS?  
DOES A VISIT AFFECT VISITORS' LEVELS OF INTEREST IN THE VARIOUS AREAS?  
DO THESE INTEREST LEVELS VARY ACROSS THE VARIOUS CATEGORIES OF VISITORS?

*The respondents at NASM primarily visited with others: children or teens or other adults; few visited the museum alone. (School groups and other organized groups were not surveyed.) All age groups were relatively uniformly represented. There were slightly more men than women. Although a large majority of visitors live well outside the greater DC area, a much smaller majority were "first time" visitors. The majority of visitors were very interested in Space Flight, Technology/Innovation, and the Universe. Less than half were very interested in the History of flight or Military aviation.*

### The Audience

**Gender.** The gender of the NASM visitors was fairly evenly divided between female and male visitors with a slight tilt towards male visitors (52%)<sup>3</sup>.

**Residence.** Less than one in ten visitors (6%) lived in the Washington D.C. metropolitan area, eight in ten lived in elsewhere in the United States (82%), and one in ten lived outside the United States (12%).

**Age.** The average age of the visitors was 39. The distribution of visitors' ages across the generational categories was relatively equal (See exhibit 1).

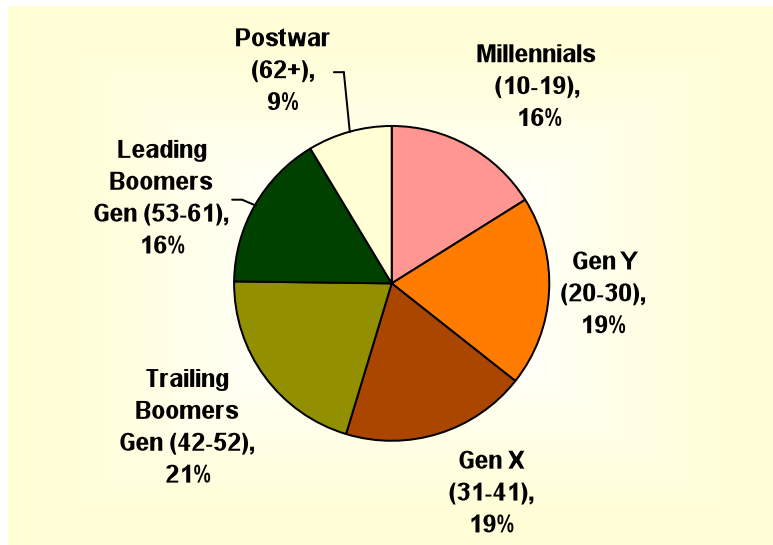
**Group Composition.** The vast majority (92%) of responding visitors said they were accompanied in their visit to NASM by other people (39% of visit groups were composed of two or more adults; 28% consisted of one or more adults with one or more children under 12; 14% included one or more adults with one or more youth ages 12 to 17, and 12% were comprised of one or more adults with both one or more children and one or more youth); only a small minority (8%) said they visited the museum alone.

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difference did not stand out when the study team analyzed average ages. Since this difference might be due to estimation error on the part of interviewers, the OP&A study team decided not to account for it when analyzing the data.

<sup>3</sup> The demographic characteristics of entering visitors and exiting visitors were similar. This study reports these statistics based on the responses of visitors entering the museum.

**EXHIBIT 1. THE AGE DISTRIBUTION OF NASM VISITORS BY GENERATIONS**



**Visit History.** The percentage of visitors who came to the museum for the first time – new visitors (58%) – was higher than the percentage of visitors who have been to the museum before – repeat visitors (42%).

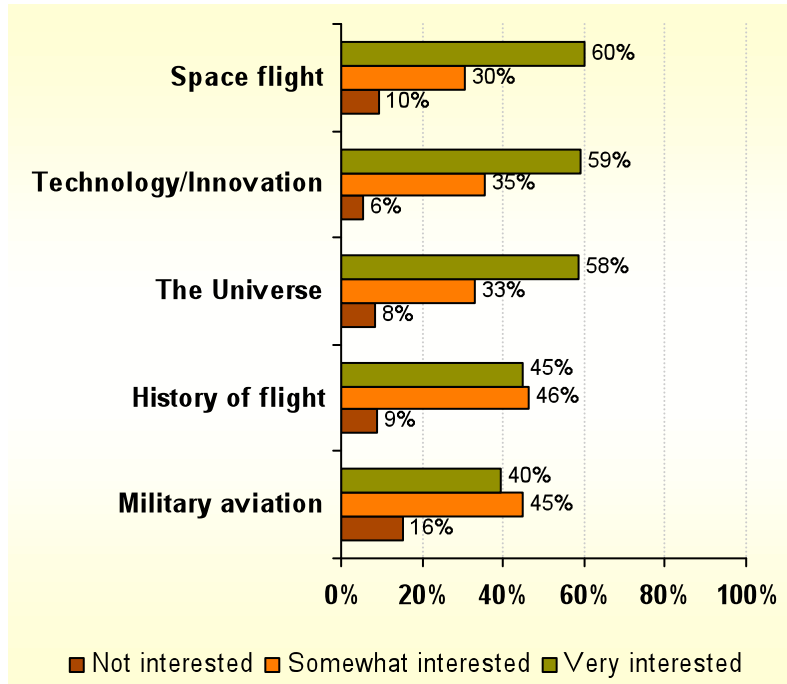
Some repeat visitors had been to the museum as recently as a day before they were intercepted, while other visitors' most recent visits were as long as 40 years ago. About one in four repeat visitors (26%) saw the museum within the last year. On average, however, repeat visitors saw the museum about 9 years ago.



## Interest

**NASM visitors entered the museum with high levels of interest in the museum's subject areas.** About three in five visitors said they were *very interested* in space flight, technology/innovation, and the universe when entering the museum. About a sixth of NASM visitors said they were not interested in military aviation. (See Exhibit 6.)

**EXHIBIT 6. VISITORS INTERESTS ON ENTRANCE**



**No significant differences in the interest levels of entering visitors and exiting visitors were found.** The interest levels in four out of five subject areas on the survey did not differ between entrance and exit: military aviation, the universe, technology/innovation, and history of flight.<sup>4</sup>

Level of interest can vary for new vs. repeat visitors, men vs. women, by visit group composition and by age. The study team looked in greater detail at whether the level of interest among various categories of visitors differed across the five subject areas included on the questionnaire.

<sup>4</sup> There was a 10% increase in visitors reporting being *somewhat interested* in space flight from entrance to exit (31% to 41%). However, this difference is not very meaningful as the level of interest for some visitors increased from *not interested* to *somewhat interested* while the level of interest for other visitors decreased from *very interested* to *somewhat interested*.

### ***Space flight***

- Repeat visitors leaving the museum were more likely to report being *very interested* in space flight (59% of repeat visitors vs. 47% of new visitors).
- Upon entering the museum men were much more likely to say they were *very interested* in space flight than women (71% men, 48% women). But on leaving the museum men were less likely to say they were *very interested*, while women were about the same as on entrance (55% men, 51% women). On exit more men reported being just *somewhat interested* in space flight compared to entrance (40% exit vs. 20% entrance).
- At both entrance and exit, responding visitors who came to the museum unaccompanied and those accompanied by adults were more likely to say they were *very interested* in space flight than those visiting with youth or with children (92% and 64% vs. 58% and 50% on entrance, 61% and 60% vs. 42% and 48% on exit.)
- At both entrance and exit, those who reported being *very interested* were older on average than other visitors (43 years old on entrance and 40 years old on exit).

### ***Technology/innovation***

- When exiting, men were more likely than women to say they were *very interested* in technology/innovation (59% of men vs. 45% of women).
- Upon exit, responding visitors who came to the museum unaccompanied and those accompanied by adults were more likely to say they were *very interested* in technology/innovation than those visiting with youth or with children (55% and 58% vs. 48% and 48%).
- On both entrance and exit, visitors who reported being *not interested* in technology/innovation were younger on average than those who reported being *very interested* in the topic (32 years old vs. 41 years old on entrance; 24 years old vs. 39 years old on exit).

### ***The universe***

- Survey respondents visiting with other adults were more likely to leave the museum *very interested* in the universe when compared to those visiting with youth (58% vs. 38%).
- On both entrance and exit, visitors who reported being *not interested* in the universe were younger on average than those who reported being *very interested* in the above topic (31 years old vs. 42 years old on entrance; 29 years old vs. 39 years old on exit).

### ***History of flight***

- Exiting repeat visitors were more likely to report being *very interested* in the history of flight when compared to exiting new visitors (46% vs. 31%).
- At the entrance, those visiting with children were less likely to say they were *very interested* in the history of flight than those visiting alone, with other adults, or with youth (35% vs. 50%, 54%, and 50%).
- On both entrance and exit, visitors who reported that they were *not interested* in the history of flight were younger on average than those who reported being *very interested* in the topic (31 years old vs. 43 years old on entrance; 27 years old vs. 42 years old on exit).

### ***Military aviation***

- At both entrance and exit, men were more than twice as likely as women to report being *very interested* in military aviation (52% vs. 24% and 52% vs. 20%).
- Visitors entering NASM who reported *not being interested* in military aviation were younger on average than those who reported being *very interested* in the topic (28 years old vs. 42 years old). Nevertheless, exiting visitors were just as likely to report similar level of interest in military aviation regardless of their age. In other words, on average those who said on exit that they were *not interested* in military aviation were older than those who were *not interested* on entrance (28 years old on entrance vs. 36 years old on exit).

## The Activities

WHICH ARE SOME IMPORTANT REASONS WHY VISITORS GO TO NASM?

WHAT DO VISITORS DO AT NASM?

DO THESE ACTIVITIES VARY ACROSS CATEGORIES OF VISITORS?

*The two most important reasons for audiences' visits to NASM were to spend time with friends and family and to take a tour. A higher percentage of visitors were engaged in hands-on activities and ate or shopped than had come to the museum for that purpose. However, even though over one-third of visitors indicated that taking a tour was an important reason for their visit, only one in ten visitors took a tour, and not all of those who came to the museum for a movie or show saw one before they left.*

Visitors entering the museum were asked to select among seven important reasons for visiting NASM (for a list of all seven reasons see Appendix 2). Four of these reasons were also listed as possible activities on the form completed by visitors leaving the museum. Visitors could mark more than one item. On average visitors chose one of these four activities on entrance and chose one of these four on exit.

### For two of these activities visitors found what they were looking for

- ***Hands-on activities.*** One in four visitors (24%) listed hands-on activities as important reasons for visiting and a higher percentage, 37%, ended up doing hands-on activities. Among entering visitors, adults with children were more likely to list this as an important reason for the visit compared to all other visitors (32% vs. 21%), and among exiting visitors adults with children were twice as likely as others to have tried hands-on activities (56% vs. 28%). Thus, among exiting visitors, those who said they had tried hands-on activities were more likely to be a little younger (average age 36) than those who did not (average age 40).
- ***Eating or shopping.*** Only about one tenth (11%) of visitors listed eating or shopping as important reasons for the visit, but more than one in three (37%) ate or shopped during their visit. Exiting women were more likely to report eating or shopping than men (42% vs. 30%), repeat visitors were more likely to report eating or shopping than new visitors (44% vs. 32%), and those visiting with children or with youth were more likely to report eating or shopping than those visiting alone or with adults (37% and 38% vs. 29% and 28%).

**For two of these activities visitors found less than they came looking for (See Exhibit 4.)**

- **Taking a tour.** Four in ten visitors (36%) indicated that taking a tour was an important reason for their visit, but only one in ten visitors (9%) leaving the museum said they took a tour. In other words, only one in four visitors who came looking for a tour actually took one.
  - New and repeat visitors were about equally likely to cite taking a tour as an important reason for their visit (40% of new visitors, 31% of repeat visitors). However, on exit new visitors were more likely to report they had taken a tour (14% of new visitors vs. 3% of repeat visitors.)
  - Men were more likely to say that taking a tour was an important reason for their visit than women were (42% vs. 30%). Nevertheless, fewer men than women reported taking a tour when exiting (5% on exit for men and 10% on exit for women).
  - Respondents visiting with other adults were more likely to say that taking a tour was an important reason for their visit when compared to those visiting with children or with youth (50% vs. 19% and 34%). Similarly groups of adults or those visiting alone were about twice as likely to take a tour when compared with those visiting with children or youth (14% and 13% vs. 4% and 8%).
  
- **Seeing an IMAX movie or a Planetarium show.** Although this activity was marked as an important visit reason by 31% of entering visitors, a smaller percentage of exiting visitors (23%) said they “saw an IMAX movie or a Planetarium show. Among exiting visitors, repeat visitors when compared to new visitors were more likely to report that they saw an IMAX (29% vs. 19%); the new visitors got less than they sought (30% on entrance; 19% on exit) . Also, those who saw an IMAX movie were older on average than those who did not (42 years old vs. 38 years old).

**EXHIBIT 4. MUSEUM ACTIVITIES**

Which of the following are important reasons for your visit to this museum today?	Entrance	Exit	What did you do in this museum today?
<b>To take a tour</b>	<b>36%</b>	<b>9%</b>	<b>I took a tour</b>
<b>To see an IMAX movie or Planetarium show</b>	<b>31%</b>	<b>23%</b>	<b>I saw an IMAX movie or Planetarium show</b>

**Other activities reported by exiting visitors:**

- I read labels/text panels (66%)
- I walked into airplanes and/or space lab (65%)
- I watched videos in exhibitions (48%)
- I rode a simulator (14%)
- None of the above (3%)

**Walking into airplanes and/or space lab and reading information were equally popular among exiting visitors.** Each of these activities was reported by two out of three visitors. Walking into airplanes and/or space lab was an activity more likely to be popular among men than among women (72% of men vs. 59% of women) and among those visiting with children compared to those visiting alone, with other adults, or with youth (77% vs. 52%, 55%, 57%).

**Having a social experience was an important visit reason for about one in two visitors.** Spending time with friends and family was marked as an important reason to visit NASM by 47% percent of entering visitors. Those who indicated that spending time with friends and family was an important reason for their visit were six years younger on average than those who did not (36 years old vs. 42 years old). Further, those visiting with children and those visiting with youth were more likely to mark “spending time with friends and family” as an important reason when compared to those visiting with other adults (72% and 61% vs. 33%.)

## The Experiences

WHAT EXPERIENCES WERE VISITORS LOOKING FORWARD TO WHEN ENTERING NASM?

WHAT EXPERIENCES DID EXITING VISITORS FIND SATISFYING?

WERE ALL EXPERIENCES EQUALLY ANTICIPATED BY ALL CATEGORIES OF VISITORS?

WHO FOUND WHICH EXPERIENCES ESPECIALLY SATISFYING?

*Overall, most visitors' expectations were met by the NASM experience, particularly in the following areas: "seeing rare/valuable/uncommon things", "seeing in person things that I've heard about", and "enriching my understanding". Notably, they saw more rare things than they expected. However, the one area of experience where the visitors' expectations were not fully met was to "feel what it is like to fly." Analysis of the areas in which mismatches in the expected and actual experiences occurred could lead to productive changes in program emphasis and resource allocation.*

On entrance visitors were asked to select from a list of ten experiences the ones they were especially looking forward to. Similarly, exiting visitors were asked to choose from the same list the ones that they found especially satisfying. The list of ten experiences was derived from two sources. Six of the experiences have been found particularly useful in studies of Smithsonian exhibitions and museums over the last ten years ("gaining information/knowledge," "enriching my understanding," "seeing rare/valuable/uncommon things," "imagining other times/places," "reflecting on the meaning of what I see," and "recalling memories"). The other four were derived from interviews with visitors during the extensive pre-testing phase of questionnaire development for this study ("feeling what it is like to fly," "feeling pride in America," "feeling a sense of discovery," and "seeing in person things I've heard about").

### **Visitors to NASM anticipated mostly knowledge and object experiences:**

"Gaining information and knowledge" was the experience that was most frequently anticipated by the visitors entering NASM (54%). (See Exhibit 5.) Other top experiences anticipated by visitors entering the museum were:

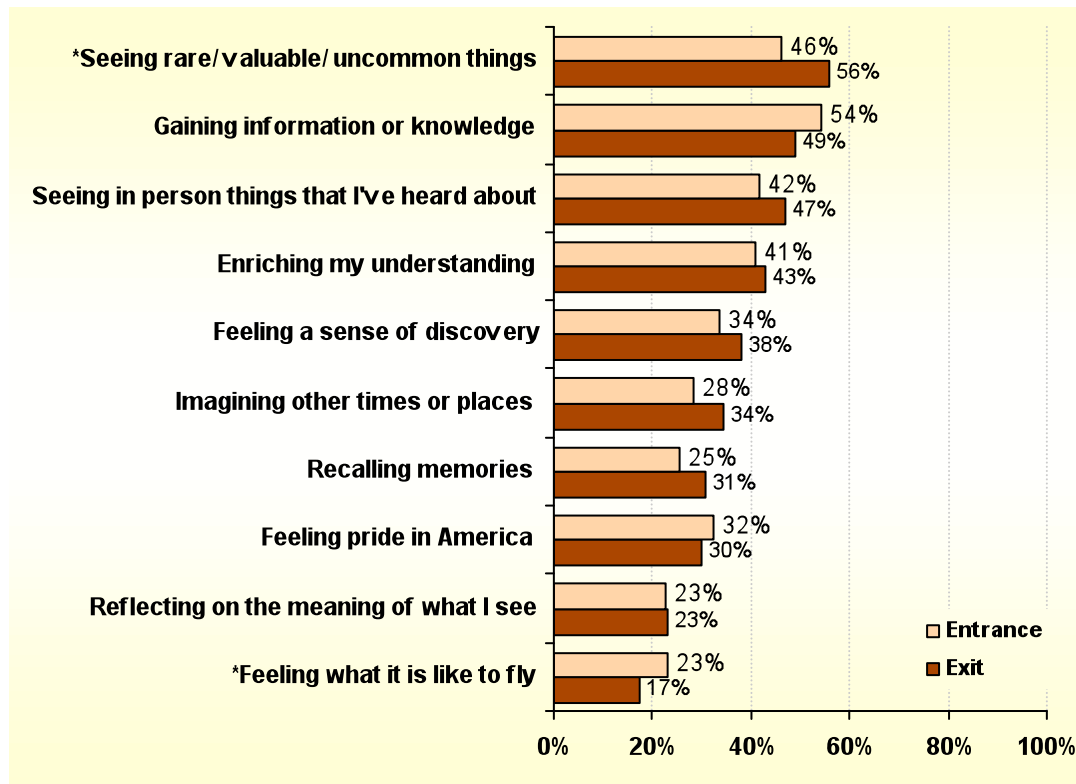
- Seeing rare/valuable/uncommon things (46%)
- Seeing in person things that I've heard about (42%)
- Enriching my understanding (41%)

**The more types of experiences visitors desired, the higher their anticipated ratings; the more types of experiences visitors reported, the higher their actual ratings.** At both entrance and exit, the average number of experiences marked by those who chose the rating *good* was 2.7, while the average number of experiences marked by those who selected *superior* was 5.1 on entrance and 4.4 on exit.

**NASM exceeded visitors' expectations with respect to "seeing rare/valuable/uncommon things."** Upon leaving, a considerably higher percentage of the museum's visitors reported this experience satisfying when compared to the percentage of visitors

who anticipated it (56% vs. 46%). This increase was due mostly to new visitors. Repeat visitors found about as much of this experience as they anticipated (50% on entrance, 54% on exit), but new visitors found much more (44% on entrance, 56% on exit). Furthermore, visitors leaving the museum marked “seeing rare/valuable/uncommon things” as a satisfying experience more often than any of the other satisfying experiences listed on the questionnaire. Exiting visitors who reported being satisfied by this experience were about 4 years older on average than the ones who did not (40 years old as compared to 36 years old.)

### EXHIBIT 5. MUSEUM EXPERIENCES



\*Statistically significant differences between entrance and exit responses

**NASM did not meet visitors’ expectations with respect to “feeling what it is like to fly.”** A smaller percentage of visitors rated this experience as satisfying when leaving the museum when compared to those who anticipated it upon entrance (from 23% on entrance to 17% on exit.)

- This experience gap existed especially for female visitors – 25% of the female visitors had been especially looking forward to it, but only 15% of women found this experience satisfying.
- New visitors were more likely to anticipate “feeling what it is like to fly” than repeat visitors (28% vs. 18%), but, while repeat visitors found about as much of this experience as they were looking for, new visitors found much less (28% on entrance vs. 20% on exit).



- On entrance, one in five adult groups (18%) were looking forward to this experience, but only one in ten (9%) found this experience during their visit. The other visitor groups had as much of this experience as they expected.
- Those who found “feeling what it is like to fly” a satisfying experience were more likely to be younger on average (34 years old vs. 39 years old).

**Overall, visitors to NASM got what they were looking for with respect to all other experiences.** In other words, overall, the museum met the anticipation of visitors with respect to nine out of the ten experiences. The average number of experiences anticipated by entering visitors (3.4) was virtually identical to the number of experiences reported by exiting visitors (3.6).

**Differences by familiarity with the museum, gender, or age were found** for many of these expectations. Overall, the older the visitor, the more experiences they were likely to anticipate at entrance and report at exit.

#### ***Gaining information and knowledge***

- Although new visitors and repeat visitors were equally looking forward to information when they arrived (55% new vs. 56% repeat), new visitors on exit were much less likely than repeat visitors to have found “gaining information and knowledge” a satisfying experience (42% new vs. 58% repeat). In other words, just as many repeat visitors found satisfying information experiences as had anticipated them, but 13% fewer new visitors had an information experience than looked forward to one.
- Visitors who looked forward to “gaining information or knowledge” were 4 years older on average than those who did not (41 year old vs. 37 years old).

#### ***Seeing in person things that I’ve heard about***

- New visitors were more likely both to have anticipated this experience and to have found it satisfying than repeat visitors (on exit: 55% of new visitors vs. 37% of repeat visitors).
- Those visiting with adults only were more likely to have found “seeing in person things that I’ve heard about” satisfying (55%) when compared to those visiting with youth (31%).
- Visitors looking forward to “seeing in person things that I’ve heard about” were four years older on average than other visitors (42 year old vs. 37 years old).

#### ***Feeling a sense of discovery***

- Female visitors were more likely to look forward to “feeling a sense of discovery” when compared to men (40% vs. 28%), but on exit both were equally likely to have found it.

#### ***Imagining other times or places***

- New and repeat visitors were equally looking forward to “imagining other times or places” (27% new, 28% repeat). However, repeat visitors were more likely to have found such experiences satisfying during their visit (30% new, 40% repeat).

- Men and women were equally looking forward to imagining experiences when entering (28% women, 28% men), but more women exiting the museum found this experience satisfying when compared to men (41% of women, 30% of men).
- Among exiting visitors, those who were with children were more likely to have found this experience satisfying (40%) when compared to those visiting alone (21%) or with youth (20%).
- On average those who anticipated this experience and found it satisfying were older than those who did not (42 years old vs. 38 years old on entrance, and 41 years old vs. 37 years old on exit).

### ***Recalling memories***

- Repeat visitors to NASM were much more likely to be looking forward to “recalling memories” (18% of new visitors, 37% of repeat visitors). Nevertheless, equal percentages of exiting new and repeat visitors found this experience satisfying (30% of new visitors, 33% of repeat visitors). In other words, new visitors found much more of this experience than they anticipated (18% on entrance, 30% on exit).
- Visitors anticipating finding satisfying “recalling memories” were four years older on average than those who did not (43 years old vs. 38 years old). The survey exit results show an even greater age difference – those who found recalling memories satisfying were on average nine years older than other visitors (45 years old vs. 36 years old).

### ***Feeling pride in America***

Among exiting visitors this experience was especially popular with

- Repeat visitors when compared to new visitors (34% vs. 26%)
- Female visitors when compared to male visitors (36% vs. 25%)

On average those who anticipated this experience and found it satisfying were older than those who did not (45 years old vs. 36 years old on entrance, and 42 years old vs. 37 years old on exit).

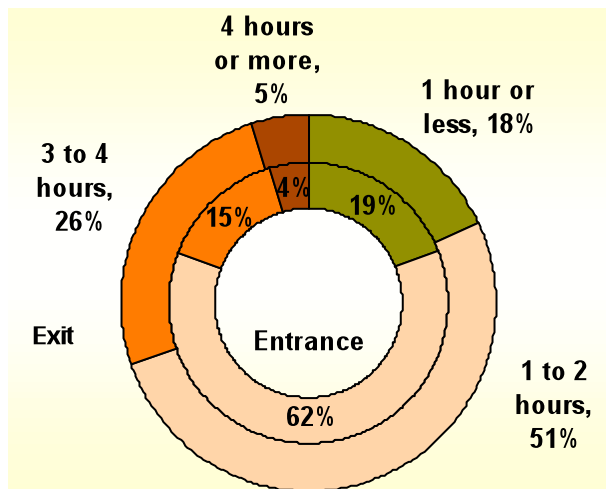
## Duration of Visit

HOW MUCH TIME DID VISITORS SAY THEY SPENT IN THE MUSEUM?  
DID VISITORS SPEND MORE OR LESS TIME THAN THEY EXPECTED?  
DID SOME CATEGORIES OF VISITORS SPEND MORE TIME THAN OTHERS?

*Some visitors spent longer than anticipated, especially those who saw an IMAX movie or Planetarium show or who ate or shopped. A longer visit was also associated with higher ratings, trying hands-on activities, watching videos, walking into airplanes, enriching one's understanding, and seeing things one had heard about.*

**Visitors to NASM spent more time in the museum than they had expected when they entered.** Eleven percent of entering visitors expected to spend *1 to 2 hours*, but ended up spending *3 to 4 hours*. (See Exhibit 2.) New visitors, in particular, were more likely to have spent longer than expected (64% of them expected to spend *1 to 2 hours* but 51% ended up spending that amount of time, while 14% of them expected to spend *3 to 4 hours* in the museum, but 26% of them ended up spending that amount of time.)

**EXHIBIT 2. TIME SPENT BY VISITORS IN NASM.**



**The more time visitors spent in the museum the more likely they were to give the top rating.** Only 10% of those who spent an hour or less rated their museum experience as *superior*, compared to 15% of those who spent *1 to 2 hours*, 16% of those who spent *3 to 4 hours* and 26% of those who spent *4 hours or more*<sup>5</sup>.

<sup>5</sup> The number of visitors leaving the museum who said they spent 4 hours or more was too small to permit further, in-depth analysis.

**Being engaged in specific activities considerably increased the likelihood of visitors spending more time in the museum.** Visitors leaving the museum who said they “saw an IMAX movie or a Planetarium show” or “ate or shopped” were more likely to have spent 3 hours or more in the museum compared to other visitors (59% of those who saw a movie or show spent 3 or more hours, compared to 22% of others; 46% of those who ate or shopped spent 3 or more hours, compared to 22% of others).

**Spending one hour or more in the museum was associated with having certain satisfying experiences and reporting certain activities:**

- “Trying hands-on activities in the exhibitions” (94% of those who spent 1 or more hours vs. vs. 76% of those who spent less than one hour)
- “Watched videos in the exhibition” (91% vs. 74%).
- “Enriching my understanding” (90% vs. 76%)
- “Seeing in person things that I’ve heard about” (89% vs. 76%)
- “I walked into an airplane” (89% vs. 70%)

**Visitors with certain demographic characteristics spent different amounts of time in the museum.**

- Men were more likely than women to have spent *1 to 2 hours* in the museum (60% of men vs. 44% of women) and less likely to have spent *1 hour or less* (12% vs. 23%).
- Respondents visiting with other adults spent less time than they expected (87% expected to spend more than one hour but only 77% spent more than one hour). Those visiting with children or youth spent about as much time as they expected.

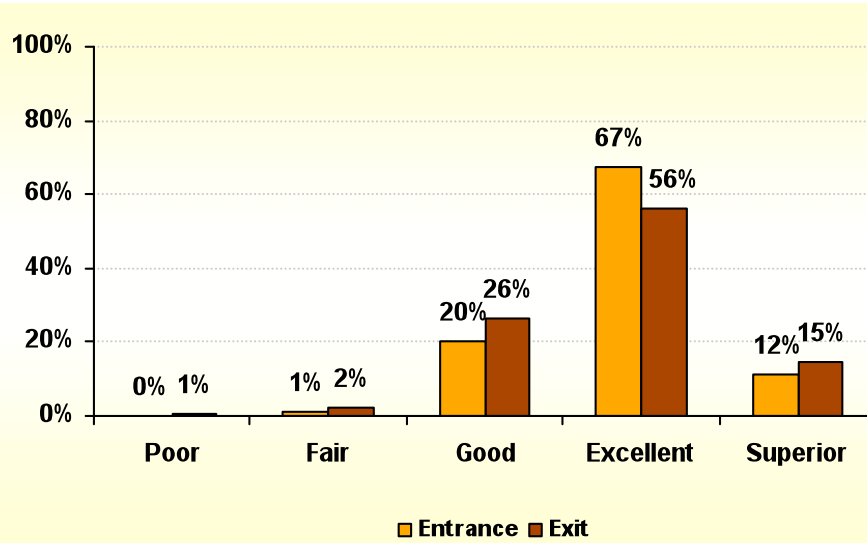
## The Rating

HOW DID VISITORS RATE THEIR OVERALL EXPERIENCE IN THE MUSEUM?  
DOES THE MUSEUM MEET THEIR EXPECTATIONS OVERALL?  
ARE THERE CATEGORIES OF VISITORS WHO ARE MORE PLEASED THAN OTHERS?  
ARE THERE EXPERIENCES OR ACTIVITIES ASSOCIATED WITH HIGHER RATINGS?

***Exiting visitors gave the museum a slightly lower rating than entering visitors anticipated. For nine out of ten visitors the experience was what they expected, for 3% it was better, and for 7% it was worse.***

A majority of the visitors leaving the NASM rated their experience in the museum as *excellent* (56%), one in seven rated it as *superior* (15%), and one in four (26%) rated their experience as *good*; only 3% of visitors rated their experience as *fair* or *poor* (Exhibit 7). This rating is close to the overall SI average (20% *superior*, 48% *excellent*, 27% *good*, 4% *fair*, 1% *poor*)<sup>6</sup>.

**EXHIBIT 7. VISITOR RATINGS OF THEIR OVERALL EXPERIENCE AT NASM.**



**Exiting visitors gave the museum a slightly lower rating than entering visitors anticipated**

- For nine out of ten visitors the overall experience was what they expected, for 3% it was better, and for 7% it was worse.

<sup>6</sup>The ratings of visitors' overall experiences at NASM in spring, 2008, were slightly lower than those the museum received in the summer of 2004, namely 19% *superior*, 50% *excellent*, 28% *good*, 2% *fair*, and 0% *poor*. See "Results of the 2004 Smithsonian-Wide Survey of Museum Visitors," Office of Policy and Analysis, Smithsonian Institution, September 2004, [www.si.edu/opanda](http://www.si.edu/opanda).

**A relatively small percentage of visitors (12%) came to NASM expecting their experience in the museum to be *superior*.**

- Some categories of visitors were more likely to expect a *superior* experience: men (15% *superior*), those *very interested* in the five subject areas listed on the questionnaire – military aviation (22%), history of flight (20%), technology/innovation (18%), the universe (17%), space flight (16%) - and visitors looking forward to the following satisfying experiences:
  - Feeling pride in America (24%)
  - Feeling what it is like to fly (23%)
  - Imagining other times or places (21%)
  - Recalling memories (20%)
- Those who expected to give their overall experience the top rating were more likely to be older (average age 42 years old).

**Some visitors entered the museum with low expectations.**

- About one in five visitors entering the museum expected to rate their overall experience in the museum *good* (20%) or worse (*fair* or *poor*, 1%). Categories of visitors who were more likely to expect a visit no better than *good* included women (24% *good*), those who were just *somewhat interested* in space flight (28%), and those *not interested* in the history of flight (46%), technology/innovation (44%), the universe (42%), or military aviation (39%).
- Lower expectations were also found among those who did not anticipate having the following experiences:
  - Feeling pride in America (24%)
  - Imagining other times or places (22%)
- Those who had these lower expectations were also more likely to be younger (the average age of those who expected to have a *good* experience in the museum was 33).

**New visitors had mixed responses.** While 7% of new visitors gave their NASM experience a higher rating on exit than they expected to give it when they entered, another 11% gave it a lower rating than expected on entrance. For repeat visitors the rating differences between entrance and exit were not statistically significant.

**The museum was equally *superior* to all demographic categories of visitors.** On exit about 15% of visitors rated their overall experience in the museum as *superior*, regardless of their age, residence, gender, or group composition. Nevertheless, certain experiences, activities, and personal interests were associated with higher *superior* ratings for the visit.

Experiences associated with higher *superior* ratings:

- Feeling what it is like to fly (23%)
- Recalling memories (21%)
- Feeling a sense of discovery (19%)
- Seeing rare/valuable/uncommon things (17%)

Activities associated with higher *superior* ratings:

- I ate or shopped (20%)
- I walked into an airplane (19%)
- I watched videos in the exhibitions (19%)

Interest levels associated with higher *superior* ratings:

*very interested* in

- History of flight (23%)
- Military aviation (20%)
- Space flight (20%)
- Technology/innovation (20%)
- The Universe (19%)

It is also worth noting that the more time visitors spent in the museum the more likely they were to rate their experience as *superior*.

**More than half of visitors (56%) rated their overall experience in the museum as *excellent*.** Some categories of visitors were more likely to rate NASM as *excellent*: those who reported “feeling a sense of discovery” (64%) or “seeing rare/valuable/uncommon things” (61%) or those who “tried hands-on activities” (67%). Those who said that they did not plan to visit UHC during this trip were also more likely to rate the museum as *excellent* (70%).

**One in four visitors rated their overall experience in the Air and Space museum as *good* (26%).** Visitors belonging to Generation X were more likely to have rated their experience as *good* (38% rated their experience as *good*), as well as those who were just *somewhat interested* in space flight (43%), technology/innovation (36%), the universe (35%), or the history of flight (32%). In addition certain categories of visitors were more likely to rate NASM as *good*: visitors who did not mark the activities “I watched videos in exhibitions” (32% *good*), or “I tried hands-on activities” (30%), as well as those who did not find satisfying “seeing rare/valuable/uncommon things” (34%), “recalling memories” (30%), or “feeling a sense of discovery” (33%). Also those who offered a suggestion/criticism were more likely to rate their overall experience in the museum as *good* or less (36%).

## Specific Suggestions/Criticisms

WHAT ARE THE SUGGESTIONS/CRITICISMS OFFERED BY EXITING VISITORS?

*Exiting visitors were asked “If you were the director of the museum, what would you change?” Half of the visitors leaving the museum offered a specific comment. Twenty percent of exiting visitors said they would not change anything in the museum while 30% offered specific suggestions or criticisms.*

**Offering suggestions or criticisms was correlated with lower ratings of the museum.** Only 7% of those who offered specific suggestions/criticisms to the museum rated their experience as *superior*; 57% rated it as *excellent* and the remaining 36% rated it as *good* or less. Comparatively, 31% of those who said they would not change anything if they were the director of the museum rated their overall experience as *superior*.

### **Crowding**

Some respondents complained about the number of visitors (*too many people, too many out-of-control school groups, too many kids, restrict school trips to published days only, limit the amount of people in one area at a time, work on crowd control, timed entry, better flow of people*).

### **Exhibitions**

Some visitors criticized exhibitions (*update the videos, update the exhibits, Wright Brothers exhibit, robots, more about space, more science about the universe and how it works, more room for model planes, more military history, more detail on certain things, more entertainment to hook people, put dates systematically on all labels, more detailed explanations, get the A-4 out of the War in the Pacific exhibit, more history, include motion in exhibits*).

### **Hands-on**

Some expressed a desire for more tactile experiences (*touch planes, go inside planes, more hands-on, more hands-on stuff, more hands-on activities, more activities for children, more interactive stations/exhibits*).

### **Tours and IMAX**

Some wanted more tours and others were critical of IMAX (*more staff at ticket booth, more seating, more interesting movies, more films, fewer lines*).

### **Other**

The remaining comments criticized the simulators (*more, cheaper, longer*), the shop (*lines too long, more things to buy*), seating (*not enough*), maintenance (*less stuff out of order*), lighting (*too dark in places*), more help getting around (*clearer signs, better flow, more escalators*), and other issues (*longer hours, pushy guards, closed exhibits, not enough restrooms, lower fees, carpet, change exhibits, better accessibility*).



## Udvar-Hazy Center

HOW MANY VISITORS WERE AWARE OF THE UDVAR HAZY CENTER (UHC)?

DID VISITORS LEARN ABOUT UHC IN THE MUSEUM?

WHAT PERCENTAGE OF VISITORS PLANNED TO VISIT UHC THIS TRIP?

*The visit to the Mall museum increased awareness of the Udvar-Hazy Center by 10%, so that, by the end of the visit, nearly half knew about it.*

**Two in five visitors entering the museum (39%) said they were aware of NASM's other facility, the Udvar-Hazy Center (UHC), at Dulles Airport.**

**One in six visitors who did not know about UHC when they entered learned about it while at NASM.** During their visit an additional 10% of visitors overall became aware of the Hazy Center (from 39% on entrance to 49% on exit.)

- Both new and repeat visitors learned about UHC (from 28% to 39% for new visitors, and from 52% on entrance to 65% on exit for the repeat visitors).
- Females were more likely than males to learn about UHC during their visit (from 35% at entrance to 49% on exit).
- The visitors who said they knew about UHC were more likely to be older at both entrance and exit when compared to those who reported not being aware of Air and Space's other public facility (at entrance 45 years old vs. 36 years old and at exit 40 years old vs. 36 years old).

**Among both entering and exiting visitors two in five of those aware of UHC plan to visit it** during their trip to the Smithsonian museums or D.C. area or have visited Hazy already (46% on entrance, 42% on exit).

## Observations

This study was designed to give a broad overview of visitor experiences at NASM. It was conducted during NASM's most difficult season – when busloads of students and tourists drawn by vacation schedules and cherry blossoms descend on the museum in great numbers<sup>7</sup>. This study did not include those who came in organized groups, such as the school classes.

The crowded condition of the museum might account, at least in part, for the fact that some exiting visitors gave their overall experience a lower rating than entering visitors anticipated. But the difference was small overall – nine out of ten visitors got the experience they were expecting and 3% got more than they were expecting. In line with this outcome, visitors left reporting the same average number of different experiences as they had been looking forward to. The two experience differences (more “seeing rare things,” fewer “feeling what it’s like to fly”) were relatively minor. The same absence of change is evident with visitors’ reports of their interests.

This relatively static condition is both good and bad. It is good in that most visitors are getting what they want. It is bad in that very few are getting more than they anticipated. Only when we examine the reasons why visitors came and the categories of visitors that show some significant differences (new vs. repeat visitors, men vs. women, visit group composition, and age), do we see patterns that point to lost opportunities.

Only one in four visitors for whom taking a tour was an important reason for coming to the museum actually took a tour (36% cited it as important reason, 9% took a tour). The study cannot tell us why this is so, although we can speculate that tours might have been hard to find, few in number, or not the kind they wanted. The gap was especially large for groups of adults (50% cited it as important reason, 14% took a tour), and perhaps this is a reason why groups of adults were the only group type that spent less time in the museum than expected.

Similarly, seeing an IMAX movie or planetarium show was an important visit reason for 31% of visitors, but 23% of exiting visitors saw a show. In this case the gap was greater for new visitors (30% of them cited it as an important reason, 18% saw one). Open-ended comments suggested that lines, prices, and movie selection were deterrents for some IMAX programs.

One wonders if these gaps exist at other times of year, when the museum is less crowded.

New visitors are an especially important category, since their visit experience is likely to determine not only whether they return, but also what they tell prospective visitors. Not surprisingly, new visitors stayed longer in the museum than repeat visitors, but objects

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<sup>7</sup> The data collection did not take place during the Cherry-Blossom Festival itself.

and photographs seemed to have been more accessible to them than texts: they saw rare things 11% above expectation, and recalled memories 11% above expectation, but gained information 13% below expectation. At the end of the visit they indeed showed a mixed response: 7% of new visitors gave their NASM experience a higher rating on exit than they expected to give it when they entered, while 10% gave it a lower rating than expected on entrance. This study cannot explain these findings but we can hypothesize that the new visitors may have needed additional help finding information or exhibitions of interest to them.

Although the audience was fairly evenly divided between men and women, women entering the museum were much less interested than men in military aviation and space flight, but equally interested in the universe, technology, and the history of flight. By the end of the visit the interest gap between women and men narrowed for space flight (because men's interest in space flight dropped between entrance and exit). Compared to men, more women entered the museum looking forward to "feeling a sense of discovery," but men closed that gap by the end of the visit. On the other hand, women left the museum with more imagining experiences than men, and more feelings of "pride in America," although men and women had not differed on entrance with respect to those experiences. Perhaps as a result, even though women had expected to like NASM less than men when they entered, the difference between their exit ratings was not significant. Overall the museum worked better for women than they thought it would. The fact that the museum worked better for women than they expected suggests a promotional opportunity for the museum.

Age can be a benefit in visiting a museum. As the data demonstrates, the older a visitor, the more experiences that visitor was likely to look forward to or to report. Presumably prior visits to museums have honed older visitors' skills of knowing what to expect and how to find what they're seeking. But while age was correlated with expected rating (older people expected a better experience), it was not correlated with the actual rating.

In the end, the range of experiences that visitors looked forward to and found satisfying were strongly associated with ratings, both on entrance and on exit. The more different types of experiences visitors expected, the higher their anticipated ratings; the more types of experiences visitors reported, the higher their actual ratings. At both entrance and exit, the average number of experiences marked by those who also marked *good* was 2.7, while the average number of experiences marked by those who also marked *superior* was 5.1 on entrance and 4.4 on exit. As other studies at the Smithsonian have suggested, ratings are higher when visitors find more different kinds of experiences than they expected.<sup>8</sup> A strategy to raise the museum's ratings could begin with efforts to increase the number of unexpected experiences that visitors find satisfying.

As noted above, this was a baseline study. Two types of studies would be a logical next step forward. First, it would be useful to replicate this study in other seasons, especially in fall or winter, to see if a less crowded environment leads to a significantly different

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<sup>8</sup> See An Analysis of Existing Data on Visitors to the Freer and Sackler Galleries, OP&A, 2007 (<http://www.si.edu/opanda/docs/Rpts2007/FSG.metadata.071114.final.pdf>).

result. Second, this overview could be followed by more focused studies that look simultaneously at several key exhibitions in the museum to better understand how the differences in content and presentation are affecting visitor experiences and responses.

# Appendix 1: Entrance and Exit Surveys

Spring 2008

7461325334 Entrance A National Air and Space Museum Survey [ ][ ][ ][ ]

Is today your first visit to the National Air and Space Museum?  Yes  No **If \*No\* How long ago was your most recent visit?** \_\_\_\_\_

How do you think you will rate your overall experience at this museum when you leave?  Poor  Fair  Good  Excellent  Superior

Which of these experiences are you *especially* looking forward to during your visit today in this museum? **[Mark one or more]**

- Recalling memories
- Enriching my understanding
- Seeing in person things that I've heard about
- Feeling what it is like to fly
- Feeling pride in America
- Seeing rare/valuable/uncommon things
- Gaining information or knowledge
- Feeling a sense of discovery (aha! moments)
- Imagining other times or places
- Reflecting on the meaning of what I see

Which of the following are *important* reasons for your visit to this museum today? **[Mark one or more]**

- To see something in particular [please specify]: \_\_\_\_\_
- To see an IMAX movie or Planetarium show
- To do hands-on activities
- To spend time with friends/family
- To take a tour
- To eat or shop
- Other [please specify]: \_\_\_\_\_

How much time do you expect to spend in this museum today?  1 hour or less  1 to 2 hours  3 to 4 hours  4 hours or more

Do you know about the Air and Space's other museum near Dulles airport in Virginia?  No  Yes **If \*Yes,\* do you plan to visit it during this trip to Smithsonian museums or D.C. area?**

- No
- Yes
- I've been there during this trip

With whom are you visiting this museum today?  I am with a school group/organized group  I am alone  I am with others

If with others, how many people other than yourself are with you? **[Write number of people]**

Adults 18 or over   
  Youth 12 to 17   
  Children under 12

Where do you live?  United States, Zip code:   
 Other Country, [please specify]: \_\_\_\_\_

What is your sex?  Female  Male

What is your age?

In general, how interested are you in the following?	Not Interested	Somewhat Interested	Very Interested
Military aviation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Space flight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The Universe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Technology/Innovation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
History of flight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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Thank you!!     C  IA  IO  R  RL

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Is today your first visit to the National Air and Space Museum?  Yes  No If \*No\* How long ago was your most recent visit? \_\_\_\_\_

Please rate your overall experience at this museum today  Poor  Fair  Good  Excellent  Superior

Which of these experiences were *especially* satisfying for you during your visit today in this museum? [Mark one or more]

Recalling memories  
 Enriching my understanding  
 Seeing in person things that I've heard about  
 Feeling what it is like to fly  
 Feeling pride in America  
 Seeing rare/valuable/uncommon things  
 Gaining information or knowledge  
 Feeling a sense of discovery (aha! moments)  
 Imagining other times or places  
 Reflecting on the meaning of what I see

What did you do in this museum today? [Mark one or more]

I walked into airplanes and/or space lab  
 I saw an IMAX movie or Planetarium show  
 I took a tour  
 I ate or shopped  
 I rode a simulator  
 I watched videos in exhibitions  
 I read labels/ text panels  
 I tried hands-on activities in exhibitions  
 None of the above

How much time did you spend in this museum today?  1 hour or less  1 to 2 hours  3 to 4 hours  4 hours or more

Do you know about the Air and Space's other museum near Dulles airport in Virginia?  No  Yes If \*Yes,\*do you expect to visit it during this trip to Smithsonian museums or D.C. area?  No  Yes  I've been there during this trip

With whom are you visiting this museum today?  I am with a school group/organized group  I am alone  I am with others

If with others, how many people other than yourself are with you? [Write number of people]  Adults 18 or over  Youth 12 to 17  Children under 12

Where do you live?  United States, Zip code:        Other Country, [please specify]: \_\_\_\_\_

What is your sex?  Female  Male

What is your age?

In general, how interested are you in the following?	Not Interested	Somewhat Interested	Very Interested
Military aviation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Space flight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The Universe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Technology/Innovation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
History of flight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you were director of this museum, what would you change? \_\_\_\_\_

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Thank you!!

C  IA  IO  R  RL

## Appendix 2: Visitors Responses to The Survey

**Table 1: Results of the Spring, 2008 National Air and Space Museum Visitor Survey**

		Location	
		Entrance n=348	Exit n=378
<b>Is today your first visit to the National Air and Space Museum?</b>	<i>No</i>	42.2%	41.5%
	<i>Yes</i>	57.8%	58.5%
	<i>Total</i>	100%	100%
<b>How long ago was your most recent visit? [among repeat visitors]</b>	<i>One year ago</i>	25.8%	33.9%
	<i>Average</i>	9 years ago	7 years ago
<b>How do you think you will rate your overall experience when you leave? [Entrance] Please rate your overall experience at this museum today. [Exit]</b>	<i>Poor</i>	0.0%	0.5%
	<i>Fair</i>	1.0%	2.3%
	<i>Good</i>	20.4%	26.4%
	<i>Excellent</i>	67.2%	56.1%
	<i>Superior</i>	11.5%	14.7%
	<i>Total</i>	100%	100%

**Which of these experiences are you especially looking forward to during your visit in this museum? [Entrance]**

**Which of these experiences were especially satisfying for you during your visit in this museum today? [Exit]**

Gaining information or knowledge	<i>Not marked</i>	45.7%	51.1%
	<i>Marked</i>	54.3%	48.9%
	<i>Total</i>	100%	100%
Seeing rare/ valuable/ uncommon things	<i>Not marked</i>	54.0%	44.1%
	<i>Marked</i>	46.0%	55.9%
	<i>Total</i>	100%	100%
Seeing in person things that I've heard about	<i>Not marked</i>	58.1%	53.2%
	<i>Marked</i>	41.9%	46.8%
	<i>Total</i>	100%	100%
Enriching my understanding	<i>Not marked</i>	59.1%	56.8%
	<i>Marked</i>	40.9%	43.2%
	<i>Total</i>	100%	100%

		Location	
		Entrance n=348	Exit n=378
Feeling a sense of discovery	<i>Not marked</i>	66.1%	62.1%
	<i>Marked</i>	33.9%	37.9%
	<i>Total</i>	100%	100%
Feeling pride in America	<i>Not marked</i>	67.7%	70.0%
	<i>Marked</i>	32.3%	30.0%
	<i>Total</i>	100%	100%
Imagining other times or places	<i>Not marked</i>	71.9%	65.8%
	<i>Marked</i>	28.1%	34.2%
	<i>Total</i>	100%	100%
Recalling memories	<i>Not marked</i>	74.8%	69.2%
	<i>Marked</i>	25.2%	30.8%
	<i>Total</i>	100%	100%
Feeling what it is like to fly	<i>Not marked</i>	76.7%	82.6%
	<i>Marked</i>	23.3%	17.4%
	<i>Total</i>	100%	100%
Reflecting on the meaning of what I see	<i>Not marked</i>	77.3%	76.9%
	<i>Marked</i>	22.7%	23.1%
	<i>Total</i>	100%	100%
<b>Which of the following are important reasons for your visit to this museum today?</b> [Mark one or more] [Entrance]			
<b>What did you do in this museum today?</b> [Mark one or more] [Exit]			
To spend time with friends and family [Entrance]	<i>Not marked</i>	52.9%	NA
	<i>Marked</i>	47.1%	
	<i>Total</i>	100%	
To take a tour [Entrance] I took a tour [Exit]	<i>Not marked</i>	63.7%	90.9%
	<i>Marked</i>	36.3%	9.1%
	<i>Total</i>	100%	100%



		Location	
		Entrance n=348	Exit n=378
To see an IMAX movie or Planetarium show[Entrance]	<i>Not marked</i>	69.4%	76.6%
I saw an IMAX movie or Planetarium show[Exit]	<i>Marked</i>	30.6%	23.4%
	<i>Total</i>	100%	100%
To do hands-on activities [Entrance]	<i>Not marked</i>	76.4%	63.2%
I tried hands-on activities in exhibitions [Exit]	<i>Marked</i>	23.6%	36.8%
	<i>Total</i>	100%	100%
To see something in particular [Entrance]	<i>Not marked</i>	86.3%	NA
	<i>Marked</i>	13.7%	
	<i>Total</i>	100%	
To eat or Shop [Entrance]	<i>Not marked</i>	88.8%	63.1%
I ate or shopped [Exit]	<i>Marked</i>	11.2%	36.9%
	<i>Total</i>	100%	100%
Other activities [Entrance]	<i>Not marked</i>	96.5%	NA
	<i>Marked</i>	3.5%	
	<i>Total</i>	100%	
I read labels/text panels [Exit]	<i>Not marked</i>	NA	34.3%
	<i>Marked</i>		65.7%
	<i>Total</i>		100%
I walked into airplanes and/or space lab [Exit]	<i>Not marked</i>	NA	34.7%
	<i>Marked</i>		65.3%
	<i>Total</i>		100%
I watched videos in exhibitions [Exit]	<i>Not marked</i>	NA	52.1%
	<i>Marked</i>		47.9%
	<i>Total</i>		100%
I rode a simulator [Exit]	<i>Not marked</i>	NA	86.5%
	<i>Marked</i>		13.5%

		Location		
		Entrance n=348	Exit n=378	
	<i>Total</i>		100%	
None of the above	<i>Not marked</i>	NA	97.4%	
	<i>Marked</i>		2.6%	
	<i>Total</i>		100%	
<b>How much time do you expect to spend in this museum today?</b> [Entrance] <b>How much time did you spent in this museum today?</b> [Exit]	<i>1 hour or less</i>	18.6%	17.9%	
	<i>1 to 2 hours</i>	62.1%	51.4%	
	<i>3 to 4 hours</i>	14.9%	25.7%	
	<i>4 hours or more</i>	4.3%	4.9%	
	<i>Total</i>	100%	100%	
<b>Do you know about the Air and Space's other museum near Dulles airport in Virginia?</b>	<i>No</i>	60.7%	50.8%	
	<i>Yes</i>	39.3%	49.2%	
	<i>Total</i>	100%	100%	
<b>Do you plan to visit it during this trip to Smithsonian museums or D.C. area?</b> [of those who said "yes" to the previous question]	<i>No</i>	54.1%	58.0%	
	<i>Yes</i>	29.4%	36.1%	
	<i>I have been there during this trip</i>	16.5%	5.9%	
	<i>Total</i>	100%	100%	
<b>With whom are you visiting this museum today?</b>	<i>I am with a organized group</i>	0.0%	0.0%	
	<i>I am alone</i>	7.7%	7.9%	
	<i>I am with others</i>	92.3%	92.1%	
	<i>Total</i>	100%	100%	
<b>Where do you live?</b>	<i>Other country</i>	12.4%	15.6%	
	<i>US</i>	87.6%	84.4%	
	<i>Total</i>	100%	100%	
<b>What is your sex?</b>	<i>Female</i>	48.1%	48.8%	
	<i>Male</i>	51.9%	51.2%	
	<i>Total</i>	100%	100%	
<b>In general, how interested are you in the following?</b>				
	Military aviation	<i>Not interested</i>	15.5%	15.2%
		<i>Somewhat interested</i>	45.0%	48.3%
		<i>Very interested</i>	39.5%	36.5%

		<b>Location</b>	
		<b>Entrance</b>	<b>Exit</b>
		<b>n=348</b>	<b>n=378</b>
<i>Total</i>		100%	100%
Space flight	<i>Not interested</i>	9.6%	6.5%
	<i>Somewhat interested</i>	30.4%	40.9%
	<i>Very interested</i>	60.1%	52.7%
	<i>Total</i>	100%	100%
Universe	<i>Not interested</i>	8.4%	6.5%
	<i>Somewhat interested</i>	33.1%	41.6%
	<i>Very interested</i>	58.4%	51.9%
	<i>Total</i>	100%	100%
Technology/Innovation	<i>Not interested</i>	5.5%	5.6%
	<i>Somewhat interested</i>	35.4%	42.1%
	<i>Very interested</i>	59.2%	52.3%
	<i>Total</i>	100%	100%
History of flight	<i>Not interested</i>	8.9%	10.6%
	<i>Somewhat interested</i>	46.3%	51.1%
	<i>Very interested</i>	44.7%	38.3%
	<i>Total</i>	100%	100%
<b>Distribution of residence by U.S. regions</b>	<i>Metro Washington</i>	5.6%	5.9%
	<i>Southeast</i>	13.6%	9.3%
	<i>Mid Atlantic</i>	22.8%	22.1%
	<i>Midwest</i>	7.1%	5.7%
	<i>New England</i>	18.2%	21.9%
	<i>Mountain Plains</i>	5.2%	4.9%
	<i>West</i>	8.6%	8.5%
	<i>Country other than U.S.</i>	12.3%	15.7%
	<i>Other US</i>	6.5%	6.2%
<i>Total</i>	100%	100%	
<b>What is your age? (years)</b>	(average)	39	38
<b>Distribution of age by generations</b>	<i>Millennials (10-19)</i>	16.4%	16.2%
	<i>Gen Y (20-30)</i>	18.9%	15.4%
	<i>Gen X (31-41)</i>	18.9%	21.5%
	<i>Trailing BG (42-52)</i>	20.8%	26.2%
	<i>Leading BG (53-61)</i>	16.1%	15.2%
	<i>Postwar (62+)</i>	8.8%	5.5%
	<i>Total</i>	100%	100%
<b>Group composition</b>	<i>Alone</i>	7.7%	7.9%
	<i>One or more adults</i>	39.2%	36.1%
	<i>One or more adults</i>	27.8%	30.5%

	Location	
	Entrance n=348	Exit n=378
<i>with one or more children under 12</i>		
<i>One or more adults with one or more youth ages 12 to 17</i>	13.6%	12.5%
<i>One or more adults with both one or more children <u>and</u> one or more youth</i>	11.7%	13.0%

The results highlighted in yellow represent statistically significant differences between the responses of entering and exiting visitors. A statistically significant outcome is one that has little likelihood of being observed by chance (in this case the likelihood of being observed by chance is less than one in twenty).

The approximate sampling error for the entrance and exit results is plus or minus 5.8%.